

[ Please replace page 1, line 8, through page 3, line 25 as follows:

--Generally, an audio/video signal transmitted to a TV also includes additional information data. Particularly, the additional information data, such as a weekly broadcasting guide information, is provided to better serve the viewers. Therefore, a TV receiver requires a demultiplexer, by which a received signal is separated into a video signal, an audio signal, and additional information data. Namely, the demultiplexer separates either a Transport Stream (TS) or a Program Stream (PS) which includes a plurality of elementary data streams such as the video, audio and other additional information combined by a broadcasting station for storage or for transmission of data.

Thus, the additional information may be displayed on a TV screen with or separately from a broadcasted image by an Electronic Program Guide (EPG). Particularly, the EPG contains basic TV guides for program times and channels as well as detail information such plots, the type of program, whether the program is pay TV, or other available services. Thus, viewers can obtain information about present and future TV programs directly from a TV screen, without the need of other guide mediums such as a newspaper. As the number of channels and programs increase, the EPG provides a more convenient tool in searching for and/or viewing a program.

Fig. 1 is a block diagram of a typical digital TV receiving and displaying program guide information. The digital TV includes a remote control 101 which

allows viewers or users to control the TV by radio signals; a remote receiver 102 which receives signals output by the remote control 101 and outputs a key code value corresponding to a key input by the user through the remote control 101; a tuner 103 which tunes frequency corresponding to a desired channel among the signals received through an antenna or a cable; a demodulator 104 which demodulates the tuned channel frequency by a reversed modulation; a demultiplexer 105 which demultiplexes and separates the demodulated signal into an audio/video signals and additional guide information data; an audio/video decoder 106 which decodes the audio/video signal separated by the demultiplexer 105; a display unit 107 which displays the decoded signal; a storage 108 which stores the program guide information data separated by the demultiplexer 105; a controller 109 which controls the tuner 103, the demodulator 104, the demultiplexer 105, the storing and the displaying of the program guide information data, in accordance with the signal from the remote receiver 102; and a memory 110 which temporarily stores the data from the storage 108 in accordance with the control of the controller 109.--

[ Please replace page 5, lines 7-25 as follows:

--The audio/video decoder 106 decodes the audio/video signals and outputs the decoded signal to the display unit 107. The display unit 107 displays the decoded video signals on a TV screen and plays the decoded audio

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signals through a speaker. The additional information data regarding a program being displayed on the display unit is read from the storage 108 by the controller 109 and temporarily stored in the memory 110. The controller 109 then informs users through the display unit 107 that there is additional information for the program being displayed. If there is a request to view the additional information from the user, the controller 109 reads the additional information data stored in the memory 110 and displays the information on the display unit 107.

Therefore, the digital TV as described above can display information regarding the program such as a program content, program time, names of heroes, if additional information is transmitted by broadcasting stations or external program providers. But, a user's request for more information cannot be met due to the limitation of the EPG data.--

[ Please replace page 6, lines 7-11 as follows:

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--Another object of the present invention is to provide an apparatus and method for displaying additional information from an external source such as the Internet, thereby providing a variety of information even if information on a program is not included in the additional information.--

[ Please replace page 8, lines 14-17 as follows:

--Also, a modulation/demodulation unit may be added for detecting the  
AS detail information of items selected from the Internet and storing the  
information in the storage if at least one item list is selected through the  
selector.--

[ On page 10, please replace the heading at line 7 as follows:

AG --DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS--

[ Please replace page 11, line 19, through page 12, line 8 as follows:

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--FIG. 3 shows an example of data stored in the object data memory 203  
of FIG. 2. As shown, an object table including a number of tables, table IDs  
and object names for objects in a program is stored. Also, a characteristics  
table including information such as media type, a number of frames, positions,  
sizes and states of an object for each object corresponding to a table ID is  
stored. The operation of the present apparatus for displaying additional  
information will next be described.

The demultiplexer 105 demultiplexes the program selected by a user  
from a signal demodulated at the demodulator 104 and separates the program  
into the audio/video signals and the additional information data in response to  
a control signal from the controller 201. The audio/video signals are output to

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and the audio/video decoder 106, and the additional information data is output to the MODT decoder 202.--

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[ Please replace page 12, line 25, through page 13, line 22 as follows:

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and --Thus, the controller 201 informs a user that there is detail information on objects in addition to the program being displayed. The existence of detail information on an object may be informed using any one sense of a user such as sight or sound. For example, an identification figure, such as an icon or a list in a form of menu may be used. In the latter case, object names having corresponding detail information may be listed on the menu.

Accordingly, a user may press or select a key on the remote control 101 to request a display of the detail information on an object upon noticing the message that there is detail information on objects in the program being displayed. The remote receiver 102 then receives a signal from the remote control 101, and outputs to the controller 201 a signal for requesting a display of the detail information on the selected object. The controller 201 extracts the detail information corresponding to the selected object from the object data memory 203, temporarily stores the extracted information in the memory 110, and reads and displays the detail information from the memory 110 on the display unit 107 at a preset position around the selected object of the program being displayed. Namely, detail information on all or one object(s) selected by

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*As  
cont.* the remote control 101 is displayed at a preset position around a corresponding  
object.--

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[ Please replace age 14, line 8, through page 15, line 3 as follows:

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*As  
cont.* --An example of a list automatically extracted is as follows. If the  
program being displayed is a relay broadcasting of a baseball game in which  
Chanh-Park appears, the list may include Chanh-Park, LA Dodgers, or the  
Major League. If a user finds interest in an item automatically extracted and  
displayed, the user may press or select a key on the remote control 101 to  
request a further display. Otherwise, the user may enter a request for a desired  
information directly by means of a character input feature on the remote  
control 101. The remote receiver 102 receives a signal from the remote control  
101, and outputs to the controller 201 a signal to search for the information  
requested by the user.

In response, the controller 201 controls the modem 204, a modulator  
and a demodulator, and connects to the Internet or other network outside of  
the TV receiver to search for the requested information. The controller 201  
stores a result of the search in the object data memory 203. Here, the  
connection to the Internet may be by cable or radio depending on the type of  
the modem 204. Also, if a direct connection is formed to a modem of a program

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provider, the detail information may be obtained through a server or host of the  
program provider.--

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*APD*  
Please replace page 15, line 9, through page 17, line 20 as follows:

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--Furthermore, even if the additional information data does not include detail information on each object, i.e. includes simply information on the program itself, the additional information data from the demultiplexer 105 is stored in the object data memory 203 and reception of the additional information data is informed to the user. Thus, if a user wishes to view detail information on an object while viewing the additional information such as the EPG information, a user may press or select a key on the remote control 101 to request a display of the detail information on an object.

As in obtaining further detail information other than the information included in the additional information, the controller 201 controls the modem 204, a modulator and a demodulator, and connects to the Internet or other network outside of the TV receiver to search for the detail information. The controller 201 stores a result of the search in the object data memory 203. Here also, the connection to the Internet may be by cable or radio depending on the type of the modem 204 and the detail information may be obtained through a server or host of the program provider if a direct connection is formed to a modem of a program provider.

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Thus, the controller 201 extracts the detail information obtained through the modem 204 from the object data memory 203, loads the extracted information on the memory 110, and displays the detail information on the display 107 at a preset position of a program being displayed. Alternatively, the controller 201 may automatically extract a list of possible items that the user may wish to view from the data stored in the object data memory 203; and displays the list on the display 107 at a preset position of a program being displayed such that a user may select an item of interest. In such case, the controller 201 would extract and display the detail information corresponding to the selected item from the memory 110.

Therefore, in the present apparatus, a search for detail information may be made if the additional information does not include a detail information, or a search for further detail information not included in the additional information may be made through a modem. Also, in the above embodiment, the searched information is stored in the object data memory 203 when a search for information is requested through the modem. However, the searched information may alternatively be displayed as a list in the form of a menu at a preset position of the TV screen. Thus, a user may select and display a particular information from the list using the remote control. Moreover, the menu may allow the user to store the searched information in the object data memory 203, if desired.



Therefore, the apparatus and method for displaying additional information according to the present invention allows a user to view detail information on objects in a program, where the detail information is obtained from the additional information and/or from an external source such as the Internet or other network. As a result, demands for detail information from users may be met, thereby overcoming the limitations on the amount of data that can be transmitted from broadcasting stations or program providers to a TV receiver.

The foregoing embodiments are merely exemplary and are not to be construed as limiting the present invention. The present teachings can be readily applied to other types of apparatuses, systems and methods. The description of the present invention is intended to be illustrative, and not to limit the scope of the claims. Many alternatives, modifications, and variations will be apparent to those skilled in the art.--

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